

F1  
Encl.

an optical fiber amplifier operatively connected to the optical coupler for amplifying the second optical signal with excitation by the exciting light.

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F2

Sub  
G2

18. (Once Amended) An optical amplifier comprising:

an optical coupler receiving an optical signal, which includes an optical signal light and dividing the received optical light into first and second optical lights;

an optical filter operatively connected to the optical coupler for passing the optical signal light from the first optical light, and for ascertaining a level of the optical signal through a detector; said detector being operatively connected to the optical filter for receiving the optical signal light passed through the optical filter to detect the level of the optical signal; and

an optical fiber amplifier operatively connected to the optical coupler for amplifying the second optical light with excitation by an exciting light.

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### REMARKS

Claims 15-19 are pending in this application, and stand rejected under 35 U.S.C. §103(a) as unpatentable over Applicant's disclosure of the prior art (Fig. 15 and pages 3-4 of the instant specification) or Aida et al., when taken with Heidemann, (U.S. Patent No. 5,335,109).

Applicant respectfully disagrees with this rejection.

To the best of Applicant's understanding, the Examiner contends that since Heidemann "teaches the use of optical filters positioned downstream and upstream of an optical amplifier to block pump radiation having passed through the amplifier", (Office

Action, page 3, lines 9-11), an optical filter from Heidemann positioned upstream of an optical amplifier may be combined with Fig. 15 to produce the present invention.

However, it is respectfully submitted that this is incorrect since the placing of an optical filter upstream of the optical amplifier, as disclosed in Heidemann, in Fig. 15 simply would result in the filter being placed on the optical fiber transmission path 1 in Fig. 15, which would still not produce the present invention. There is no teaching in Heidemann to place the optical filter between the coupler 10 and photo diode 11 in Fig. 15, as claimed in claims 15-19, the coupler 10 being upstream of the optical fiber amplifier 2. The only optical coupler disclosed, taught or suggested anywhere in Heidemann is the pump coupler 5 which is downstream of the erbium-doped fiber 3.

In addition, Heidemann is directed towards greater control over the level of an electrical output signal produced by an optical to electric transducer. The use of filters upstream and downstream from the optical amplifier aid in achieving the greater control over electrical output since they absorb extraneous pump light from a pump source 4 that controls the gain of the erbium-doped optical fiber amplifier 3. In contrast, the optical filter claimed herein is not directed towards gaining greater control over the optical and hence electrical output, but rather the optical filter as claimed herein is directed towards ascertaining the level of the optical input.

Aida et al., in the words of the Examiner, discloses "signal input splitting and mounting so as to control pump power (see, inter alia, Fig. 1A)", (Office Action, page 3, lines 7-8), and, thus is not directed towards determining the level of the optical input, as is the invention claimed herein.



These arguments are corroborated by the attached Declarations under 37 C.F.R. §1.132 of the inventors.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."**

#### **CLOSING**

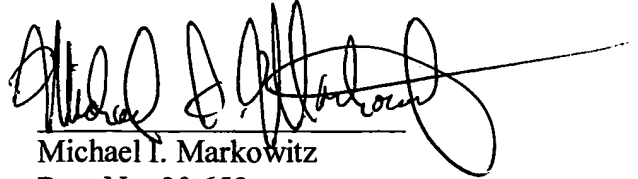
An earnest effort has been made to be fully responsive to the Examiner's objections. In view of the above amendments and remarks, it is believed that claims 15-19 are in condition for allowance. Passage of this case to allowance is earnestly solicited.

However, if for any reason the Examiner should consider this application not to be in condition for allowance, he is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.



Any fee due with this paper, not fully covered by an enclosed check, may be charged on Deposit Account 08-1634.

Respectfully submitted,



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Reg. No. 30,659

Enclosures: Version With Markings to Show Changes Made  
Declaration Under 37 C.F.R. §1.132 of Hiroyuki Deguchi  
Declaration Under 37 C.F.R. §1.132 of Masuo Suyama  
Declaration Under 37 C.F.R. §1.132 of Shinichirou Harasawa

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

Claims 15, 16, and 18 have been rewritten as follows:

15. (Twice Amended) An optical amplifier comprising:

an input terminal receiving an optical input signal;

an optical coupler dividing the optical input signal into a first optical signal and a second optical signal;

an optical filter operatively connected to the optical coupler for passing the first optical input [signal;] signal, and for ascertaining a level of the optical input signal through a detector; [a] said detector being operatively connected to the optical filter for receiving the first optical signal passed through the optical filter to detect [a] the level of the optical input signal; and

an optical fiber amplifier operatively connected to the optical coupler for amplifying the second optical signal with excitation by an exciting light.

16. (Twice Amended) An optical amplifier comprising:

an input terminal receiving an optical input signal;

an optical coupler dividing the optical input signal into a first optical signal and a second optical signal;

an optical filter operatively connected to the optical coupler for passing the first optical [signal and] signal, blocking an exciting light, which exists along with the first optical [signal;] signal, and for ascertaining a level of the optical input signal through a



detector; [a] said detector being operatively connected to the optical filter for receiving the first optical signal passed through the optical filter to detect [a] the level of the optical input signal; and

an optical fiber amplifier operatively connected to the optical coupler for amplifying the second optical signal with excitation by the exciting light.

18. (Once Amended) An optical amplifier comprising:

an optical coupler receiving an optical [light,] signal, which includes an optical signal light and dividing the received optical light into first and second optical lights;

an optical filter operatively connected to the optical coupler for passing the optical signal light from the first optical [light,] light, and for ascertaining a level of the optical signal through a detector; [a] said detector being operatively connected to the optical filter for receiving the optical signal light passed through the optical filter to detect the level of the optical signal; and

an optical fiber amplifier operatively connected to the optical coupler for amplifying the second optical light with excitation by an exciting light.